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12/10/2001

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EXAMINER
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KIM, CHRISTOPHER S

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**Please find below and/or attached an Office communication concerning this application or proceeding.**

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**BEFORE THE BOARD OF PATENT APPEALS  
AND INTERFERENCES**

Application Number: 10/006,568  
Filing Date: December 10, 2001  
Appellant(s): HAGIWARA ET AL.

**MAILED**

**AUG 22 2007**

Group 3700

Stephen R. Valancius  
For Appellant

**EXAMINER'S ANSWER**

This is in response to the appeal brief filed May 4, 2007 appealing from the Office action mailed December 5, 2006.

**(1) Real Party in Interest**

A statement identifying by name the real party in interest is contained in the brief.

**(2) Related Appeals and Interferences**

The examiner is not aware of any related appeals, interferences, or judicial proceedings which will directly affect or be directly affected by or have a bearing on the Board's decision in the pending appeal.

**(3) Status of Claims**

The statement of the status of claims contained in the brief is correct.

**(4) Status of Amendments After Final**

The appellant's statement of the status of amendments after final rejection contained in the brief is correct.

**(5) Summary of Claimed Subject Matter**

The summary of claimed subject matter contained in the brief is correct.

**(6) Grounds of Rejection to be Reviewed on Appeal**

The appellant's statement of the grounds of rejection to be reviewed on appeal is correct.

**(7) Claims Appendix**

The copy of the appealed claims contained in the Appendix to the brief is correct.

**(8) Evidence Relied Upon**

5,312,040

Woodward

05-1994

**(9) Grounds of Rejection**

The following ground(s) of rejection are applicable to the appealed claims:

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**Claims 7 and 15 are rejected under 35 U.S.C. 112, second paragraph, as being indefinite for failing to particularly point out and distinctly claim the subject matter which applicant regards as the invention.**

Claims 7 and 15 recite the functional limitation "...and supply and stop of powder and granular material is controlled by said controller based on the supply and stop of the pressurized liquid detected by said sensor." Applicant discloses that driving motor 11 and feeding device 7 are controlled by a controller 13. See specification, paragraph 9. Applicant further discloses that based on sensor 20, controller 13 controls drive motor 11. There is a structural gap in the claimed invention to accomplish the claimed functional limitation, i.e. the driving motor 11 and/or feeding device 7. The functional recitation is not commensurate in scope with the structural elements claimed. While features of an apparatus may be recited either structurally or functionally, claims directed to an apparatus must be distinguished from the prior art in terms of structure rather than function. See MPEP 2114.

**Claims 1, 3, 4, 6, 7 and 14 are rejected under 35 U.S.C. 102(b) as being anticipated by Woodward (5,312,040).**

Claim 1:

Woodward discloses a cleaning and releasing device comprising:

an injection nozzle 38 which mixes a pressurized liquid 33 and a pressurized gas 60 in said injection nozzle 38 and injects the pressurized liquid 33 and the pressurized gas 60;

a pressurized liquid flow passage 32 for supplying the pressurized liquid 33 to said injection nozzle 38;

a pressurized gas flow passage 62 for supplying the pressurized gas 60 to said injection nozzle 38;

operating means 36 for supplying and stopping the pressurized liquid 33 to said injection nozzle 38, said operating means 36 being provided on the flow passage 32 of the pressurized liquid 33 in communication with said injection nozzle 38;

detecting means 12 for detecting supply and stop of the pressurized liquid 33 generated by an operation of said operating means 36, said detecting means 12 being provided in a position on said pressured liquid flow passage 32;

a switching valve 14 provided in the flow passage 62 of the pressurized gas 60 and serving to supply and stop the pressurized gas 60 to said injection nozzle 38; and

a controller 26, 28 for controlling a switching operation of said switching valve 14 based on a detection signal (column 5, lines 42 through column 6, line 16) transmitted from the detecting means 12;

wherein the controller 26, 28 opens said switching valve 14 based on a detection signal (drop in pressure under 1000 psi) transmitted from the detecting means 12 so as to supply the pressurized gas 60 to said injection nozzle 38 when the injection of the pressurized liquid 33 from said injection nozzle 38 is detected by said detecting means 12 (the injection of pressurized liquid 33 from said injection nozzle 38 through

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nozzle dump 120 is detected by detecting means 12, controller 26, 28 opens switching valve 14 to supply pressurized gas 60; see column 7, lines 1-61); and

wherein the controller 26, 28 closes said switching valve 14 based on a detection signal (liquid pressure over 1000 psi) transmitted from the detecting means 12 so as to stop the supply of the pressurized gas 60 to said injection nozzle 38 when the stop of the injection (stop of injection through nozzle dump 120) of the pressurized liquid 33 from said injection nozzle 38 is detected by said detecting means 12.

Appellant has attempted to distinguish his claimed invention from the prior art by reciting the manner in which his device operates, as evidenced by the two wherein clauses. MPEP 2114 provides that **claims directed to an apparatus must be distinguished from the prior art in terms of structure rather than function.**

Claim 3:

Woodward further discloses:

powder and granular supply means 16, 44, 56 being provided on a flow passage 62 of the pressurized gas 60, and supply and stop of the powder and granular material 18 is controlled based on a result (liquid pressure over 1000 psi) of the detection related to the supply and stop of the pressurized liquid 33 to said injection nozzle 38.

Claim 4:

Woodward further discloses:

wherein the supply of the pressurized gas 60 is started and the supply of the powder and granular material 18 is started based on the detection of the supply of

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the pressurized liquid 33 to said injection nozzle 38 when injection is to be started (pressurized gas 60 is started when liquid pressure falls below 1000 psi and the powder and granular material 18 is started when the liquid pressure rises above 1000 psi), the supply of the powder and granular material 18 is stopped and the supply of the pressurized gas is stopped after a predetermined time passes based on the detection of the stop of the pressurized liquid to said injection nozzle when the injection is to be stopped (powder and granular material 18 is stopped when the supply of pressurized liquid 33 is stopped through barrel 116 of injection nozzle 38; pressurized gas 60 is stopped when the supply of pressurized liquid 33 is stopped through dump 120 of injection nozzle 38; the predetermined time is determined by the reaction time of the detecting means 12 to the rise and fall of the liquid pressure).

Claim 6:

Woodward discloses a cleaning and releasing device comprising:

- a liquid tank (figures 3 and 4; tank supplying liquid to pump 36) for storing liquid (column 4, line 12 discloses "liquid");

- a pump 36 for pressurizing the liquid in said liquid tank to supply pressurized liquid 33;

- a liquid supply passage (passage between the tank and pump 36; inherent) for connecting said liquid tank to said pump

- an injection nozzle 38 for injecting the pressurized liquid 33;

- a pressurized liquid flow passage 32 for connecting said pump 36 to said injection nozzle 38;

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a pressurized gas source 61;

a pressurized gas flow passage 58, 62 for connecting said pressurized gas source 61 to said injection nozzle 38;

a switching valve 14 provided on said pressurized gas supply passage 58, 62;

a sensor 12 provided on said pressurized liquid flow passage 32 to detect supply and stop of the pressurized liquid 33 from said liquid tank (to the barrel 116 of injection nozzle 38);

an operating portion 102 disposed in said injection nozzle 38 to thereby supply and stop the pressurized liquid 33 (to the barrel 116 of injection nozzle 38);

a controller 26, 28 connected to said sensor 12 and said pressurized gas supply passage 58, 62, said controller 26, 28 detecting supply and stop of the pressurized liquid 33 (to the barrel 116 of injection nozzle 38) detected by said sensor 12 to thereby control supply and stop of the pressurized gas 60 from said pressurized gas supply passage 58, 62 to said injection nozzle 38 based on a detection signal (liquid pressure above or below 1000 psi) of said sensor 12;

wherein pressurized gas 60 is supplied to said injection nozzle 38 from said pressurized gas supply passage 58, 62 when said sensor 12 detects the supply of the pressurized liquid 33 (at liquid pressure below 1000 psi) from the liquid tank.

Claim 7:

Woodward further discloses:

a powder and granular tank 16 connected to said pressurized gas passage 58, 62, and supply and stop of powder and granular material 18 is controlled by said controller 26, 28 based on the supply and stop of the pressurized liquid 33 (to the barrel 116 of injection nozzle 38) detected by said sensor 12.

Claim 14:

Woodward further discloses:

Wherein the controller 26, 28 controls the supply and stop of the pressurized gas 60 by opening and closing the switching valve 14 on the pressurized gas supply passage 58, 62.

**(10) Response to Argument**

In response to appellant's argument that claims 7 and 15 are definite, the structure limitations are not commensurate in scope with the functional recitations. For example, claim 7 recites "... and supply and stop of powder and granular material is controlled by said controller based on the supply and stop of the pressurized liquid detected by said sensor." The claim lacks the structure that supplies or stops supply of the powder and granular material. On the basis of appellant's argument, the follow apparatus claim would also be definite,

An apparatus comprising a member wherein [followed by a detailed listing of all the function performed by the apparatus without any further structural recitation]

or,

An apparatus wherein [followed by a detailed listing of all the function performed by the apparatus without any further structural recitation]

An apparatus claim where the structural recitation is not commensurate in scope with the functional recitation is indefinite because it is uncertain what structure must be disclosed by the prior art to teach the claimed invention. Claims directed to an apparatus must be distinguished from the prior art in terms of structure rather than function. MPEP 2114.

Appellant argues that claim 1 is directed to mixing and injecting the combination of both a pressurized liquid and a pressurized gas. MPEP 2114 is on point with appellant's argument. Appellant argues that Woodward does not disclose the claimed invention because it does not perform the functional recitation "...which mixes a pressurized liquid and a pressurized gas in said injection nozzle and injects the pressurized liquid and the pressurized gas..." As detailed above, Woodward discloses the structural limitations recited in claim 1. Additionally, Woodward's device has the ability to perform the function "...which mixes a pressurized liquid and a pressurized gas in said injection nozzle and injects the pressurized liquid and the pressurized gas..." Woodward recognizes that pressure in the liquid pressure line can fall below 1000 psi by any reason. Woodward discloses, column 7, lines 49-51, "Water jetting operations may become interrupted due to an arbitrary choice by the operator or by some unforeseen mechanical failure." Therefore, one of ordinary skill in the art would have recognized that even when water is directed through barrel 116, if the pressure falls below 1000 psi due to unforeseen mechanical failure or partial depression of lever 104, pressure actuator 12 would actuate valve 14 to open inlet 22 and allow pressurized gas

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to flow through conduit 62. The result would be a mixture of pressurized water and pressurized gas in barrel 116.

Appellant argues that the liquid pressure of Woodward falls below 1000 psi when the fluid flow is interrupted. Therefore, water cannot flow through barrel 116 at a pressure below 1000 psi. Appellant's argument would be convincing if one of ordinary skill in the art thinks in a vacuum and is only guided by the explicit and literal disclosure of the prior art. On the contrary, it is presented that, with the general knowledge possessed by one of ordinary skill in the art and guided by the teachings of Woodward, such a person would recognize that a pump malfunction resulting in a fluid pressure of 500 psi would actuate valve 14 to open inlet 22 and allow pressurized gas to flow into barrel 116. The result would be a mixture of pressurized liquid and pressurized gas.

Appellant argues that Woodward does not teach controlling the flow of gas based on the stopping and starting of liquid in the line. Again, appellant argues another functional recitation of the claimed invention. In the rejection above, the claims have been reproduced verbatim with explanations of Woodward's disclosure.


#### **(11) Related Proceeding(s) Appendix**

No decision rendered by a court or the Board is identified by the examiner in the Related Appeals and Interferences section of this examiner's answer.

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For the above reasons, it is believed that the rejections should be sustained.

Respectfully submitted,



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